

**WO #:** PE85875

**WO Desc:** monomer leaking out of east end of heat exchanger

**Parent WO#:**

**WO Long Desc:** Drain Refrigerant

**WO Priority:** 2

Drain / remove monomer from location.

Disconnect Electrical devices from exchanger. (Temperature transmitter & pressure switch)

Disconnect inlet & outlet piping to allow exchanger & frame to be lifted off anchor bolts and placed to allow access to tube bundle.

Support / suspend HX head to allow disconnection from exchanger.

Unbolt head from HX exchanger body and remove nuts from anchor bolts.

Lift and place bundle and frame to the south near the rail to allow access and removal of the tube bundle.

Remove bundle, replace gaskets (inner & outer) & reinstall bundle in exchanger shell

Torque head bolts to 120 ft lbs in a 3 step process. Go 40 ft lbs then 80 then 120. Use a star pattern.

Return exchanger & frame back to original location & reconnect head.

Reconnect inlet & outlet piping.

Reconnect electrical devises.

**Location:** I-HX-1200

RECIRCULATION CHILLER 2 HEAT EXCHANGER

**Asset:** 1347485

RECIRCULATION CHILLER 2 HEAT EXCHANGER

**Asset Service:**

**Entry Date:** 3/14/2019

**WO Status:** COMP

**Action Code:** LDAR

**Project #:**

**Originator:** DAVID SCOTT

**Status Date:** 7/8/2019

**Work Type:** CM

**Failure Class:** SHTBEXCH

**Job Plan:**

**Planned Start:**

**Actual Start:** 3/19/2019

**Review Date:**

**PM/Bundle:**

**Planned Completion:** 4/9/2019

**Actual Completion:** 4/3/2019

### Plant Information

**RC:** PERC01

**Planner:** WILLIAM STONEKING

**MOC#:**

**When Code:** RT

**Lead Craft:** MECH

**MOC Status:**

**P&ID:**

**MOC Desc:**

**SIR/EIS Required:**

### LDAR

**Tag #:**

**1st Attempt Made:**

**LDAR Planning Notes:**

**Leak Type:**

**1st Attempt Was:**

**LDAR Additional Notes:**

**Size:**

**1st Attempt Due By:** 3/19/2019

**Leak Location:**

**After 1st Attempt PPM:**

**Location Orientation:**

**Final Due By:** 3/29/2019

WO #: PE85875

### Work Plan Materials

Task ID	Stock No.	Noun Qualifier	Due Date	Unit of measure	Quantity Req.
		13-1/2" x 15-1/2" x 1/8" Grafoil GHR Ring Gasket	3/27/2019 10:28:04 AM	EA	2
		13-1/2" x 19" x 1/8" Grafoil GHR with 1/2" and 3/4" ribs per customer picture, With 12 3/4" bh on a 16-1/2" bc, cross ribs centered and other ribs 2-3/4" off center	3/27/2019 10:30:04 AM	EA	2

### Work Actuals Materials

Task ID	Stock No.	Noun Qualifier	PO	PO Line Num	Quantity
		13-1/2" x 15-1/2" x 1/8" Grafoil GHR Ring Gasket			2
	706227	TEFLON TAPE, 3/4", P/N GTTF 520.			1
	400017	VALVE, BALL, APL, SS, THRD, 3/4"			2
		13-1/2" x 19" x 1/8" Grafoil GHR with 1/2" and 3/4" ribs per customer picture, With 12 3/4" bh on a 16-1/2" bc, cross ribs centered and other ribs 2-3/4" off center			2

### Services Plans

Line Type	Service	Description	Quantity	Unit Cost	Line Cost
SERVICE		Materials and labor to remove all refrigerant, replace piping, filters, & valves on 1200 chiller	0	\$0.00	\$12,386.00

### Services Actuals

Line Type	Voucher	Service	Description	Line Cost
FREIGHT	PEV109290	FRT	Shipping Amount	\$75.54
TAX	PEV109290	ST	SALES TAX	\$0.44
TAX	PEV109290	ST	SALES TAX	\$(0.44)
SERVICE	PEV110922		Materials and labor to remove all refrigerant, replace piping, filters, & valves on 1200 chiller	\$12,386.00

WO #: PE85875

Work Order Notes

RICH WILLIAMS	03/14/2019	removed the insulation to identify the location of the leak. need to plan the gasket replacement and inspect the rest of the system.
RICH WILLIAMS	03/25/2019	removed power and disconnected temp transmitter and pressure switch
RICH WILLIAMS	04/03/2019	Exchanger reinstalled. electrically connected. need contractor to finish.
WILLIAM STONEKING	04/10/2019	HX Head leaking N2 on refrigerant side . Slight leak between 10:00 & 2:00 o' clock. Tighten head bolts a little more to stop leakage.
WILLIAM STONEKING	04/24/2019	REPLACED REFRIGERANT

Completed by Emp #: \_\_\_\_\_

Signature: \_\_\_\_\_

Please print or type.

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number ILD 087 154 555	2. Page 1 of 2	3. Emergency Response Phone (800) 838-3975	4. Manifest Tracking Number 020191639 JJK			
5. Generator's Name and Mailing Address FLINT HILLS RESOURCES, PERU LLC 501 BRUNNER STREET PERU, IL 61354 Generator's Phone: (815) 224-1525				Generator's Site Address (if different than mailing address)				
6. Transporter 1 Company Name ENVIRITE OF ILLINOIS, INC.				U.S. EPA ID Number ILD 000 666 206				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address ENVIRITE OF ILLINOIS, INC.-USE 16435 S. CENTER AVE. HARVEY, IL 60426 Facility's Phone: (708) 596-7040				U.S. EPA ID Number ILD 000 666 206				
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
X	UN1992, Waste Flammable liquids, toxic, n.o.s. (Ethyl Benzene), 3, (6.1), PGII, ERG #131	001	DM	430	P	F003	D001	
X	2JN2055, Waste Styrene monomer, stabilized, 3, PGIII, ERG #128P	001	DM	178	P	D001		
X	3RQ, UN1492, Waste Potassium persulfate, 5.1, PGIII, D001, ERG #140	002	DM DF	471	P	D001		
X	4JN1992, Waste Flammable liquids, toxic, n.o.s. (Toluene, Methylene Chloride), 3, (6.1), PGII, ERG #131	001	DM	486	P	F002	F005	D001
14. Special Handling Instructions and Additional Information KOPE-FHR08H / Ethyl Benzene & Polystyrene 2. KOPE-FHR10H / Styrene, Inhibited 3. KOPE-FHR11H / Potassium Persulfate 4. KOPE-FHR05H / Spent Lab Solvents / [Envirite of Illinois] [Ross] [H040] / [Envirite of Illinois] [Stablex] [H070]								
15. <b>GENERATOR'S/OFFEROR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.								
Generator's/Offor's Printed/Typed Name Mike Wallman				Signature Mike Wallman		Month Day Year 04 11 19		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.				Port of entry/exit: Date leaving U.S.:				
17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Laurence Venditti				Signature Laurence Venditti		Month Day Year 04 11 19		
Transporter 2 Printed/Typed Name				Signature		Month Day Year		
18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:								
18b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)						Month Day Year		
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1. H141		2. H141		3. H141		4. H141		
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name Matt Lindemulder				Signature Matt Lindemulder		Month Day Year 04 11 19		

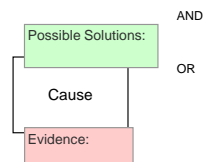
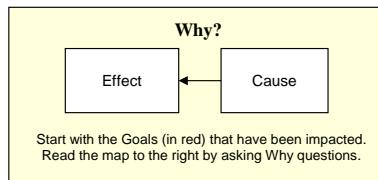
EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

FHRPRU004416



UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)		21. Generator ID Number ILD 087 154 555	22. Page 2	23. Manifest Tracking Number 020191639 JJK	
24. Generator's Name FLINT HILLS RESOURCES, PERU LLC					
25. Transporter _____ Company Name				U.S. EPA ID Number	
26. Transporter _____ Company Name				U.S. EPA ID Number	
27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No. Type		29. Total Quantity	30. Unit Wt./Vol.
X	05UN1760, Corrosive liquids, n.o.s. Quaternary Ammonium Compounds, 8, PGIII, ERG #154	001	DM	486	P
X	06UN1325, Flammable solids, organic, n.o.s. (Styrene), 4.1, PGIII, ERG #133	002	DM	267	P
	07Non Hazardous, Non D.O.T.	003	DM	1,200	P
	08Non DOT Regulated	009	DM	2,700	P
	09NON DOT Regulated	002	DM	400	P
	10NON DOT REGULATED	001	DM DF	350	P
	11NON DOT Regulated	005	DM	1,750	P
	12Universal Waste - Used Electric Lamps	001	DF	100	P
	13Universal Waste - Used Electric Lamps	001	DF CF	50	P
	14Universal Waste - Used Electric Lamps	001	DF CF	30	P
32. Special Handling Instructions and Additional Information 5. KOPE-FHR08N / Larostat 6. KOPE-FHR14H / Styrene Absorbents (No Free Liquids) 7. KOPE-FHR02N / Used Oil 8. KOPE-FHR07N / Oily Debris 9. KOPE-FHR09N / Purflo 635 10. KOPE-FHR10N / Sodium Metabisulfite 11. KOPE-FHR13N / Cooling Tower Absorbents 12. KOPE-FHR04U / Universal Waste 4ft Fluorescent Tube 13. KOPE-FHR05U / Universal Waste 8ft Fluorescent Tube 14. KOPE-FHR08U / Universal Waste HID Bulbs / [Enviro of Illinois] [Beaver Oil] [H039] / [Enviro of Illinois] [Environmental Enterprises Inc] [H121] / [Enviro of Illinois] [Everights] / [Enviro of Illinois]					
33. Transporter _____ Acknowledgment of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name Laurence Venditt		[Signature]		04 11 19	
34. Transporter _____ Acknowledgment of Receipt of Materials		Signature		Month Day Year	
Printed/Typed Name		[Signature]			
35. Discrepancy					
36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
05 H141	06 H141	07 H141	08 H110	09 H110	
10 H110	11 H110	12 H141	13 H141	14 H141	



## Step 2. Cause Map

